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THE MUTATION THEORY AND THE BLOND RACE

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The theories of racial development by mutation, associated with the name of Mendel, when they come to be freely applied to man, must greatly change the complexion of many currently debated questions of race—as to origins, migrations, dispersion, chronology, cultural derivation and sequence. In some respects the new theories should simplify current problems of ethnology, and they may even dispense with many analyses and speculations that have seemed of great moment in the past.

The main postulate of the Mendelian theories—the stability of type—has already done much service in anthropological science, being commonly assumed as a matter of course in arguments dealing with the derivation and dispersion of races and peoples. It is only by force of this assumption that ethnologists are able to identify any given racial stock over intervals of space or time, and so to trace the racial affinities of any given people. Question has been entertained from time to time as to the racial fixity of given physical traits—as, *e.g.*, stature, the cephalic indices, or hair and eye color—but on the whole these and other standard marks of race are still accepted as secure grounds of identification.¹ Indeed, without some such assumption any ethnological inquiry must degenerate into mere wool-gathering.

But along with this, essentially Mendelian, postulate of the stability of types, ethnologists have at the same time habitually accepted the incompatible Darwinian doctrine that racial types vary incontinently after a progressive fashion, arising through insensible cumulative variations and passing into new specific forms by the same method,

¹ Cf., however, W. Ridgeway, "The Application of Zoölogical Laws to Man," *Report, British Association for Advancement of Science* (Dublin), 1908.

under the Darwinian rule of the selective survival of slight and unstable (non-typical) variations. The effect of these two incongruous premises has been to leave discussions of race derivation somewhat at loose ends wherever the two postulates cross one another.

If it be assumed, or granted, that racial types are stable it follows as a matter of course that these types or races have not arisen by the cumulative acquirement of unstable non-specific traits, but must have originated by mutation or by some analogous method, and this view must then find its way into anthropology as into the other biological sciences. When such a step is taken an extensive revision of questions of race will be unavoidable, and an appreciable divergence may then be looked for among speculations on the mutational affinities of the several races and cultures.

Among matters so awaiting revision are certain broad questions of derivation and ethnography touching the blond race or races of Europe. Much attention, and indeed much sentiment, has been spent on this general topic. The questions involved are many and diverse, and many of them have been subject of animated controversy without definitive conclusions.

The mutation theories, of course, have immediately to do with the facts of biological derivation alone, but when the facts are reviewed in the light of these theories it will be found that questions of cultural origins and relationship are necessarily drawn into the inquiry. In particular, an inquiry into the derivation and distribution of the blond stock will so intimately involve questions of the Aryan speech and institutions as to be left incomplete without a somewhat detailed attention to this latter range of questions. So much so that an inquiry into the advent and early fortunes of the blond stock in Europe will fall, by convenience, under two distinct but closely related captions: *The Origin of the Blond Type*, and *The Derivation of the Aryan Culture*.

(a) It is held, on the one hand, that there is but a single blond race, type or stock (Keane, Lapouge, Sergi), and on the other hand that there are several such races or types, more or less distinct but presumably related (Deniker,

Beddoe, and other, especially British, ethnologists). (b) There is no good body of evidence going to establish a great antiquity for the blond stock, and there are indications, though perhaps inconclusive, that the blond strain, including all the blond types, is of relatively late date—unless a Berber (Kabyle) blond race is to be accepted in a more unequivocal manner than hitherto. (c) Neither is there anything like convincing evidence that this blond strain has come from outside of Europe—except, again, for the equivocal Kabyle—or that any blond race has ever been widely or permanently distributed outside of its present European habitat. (d) The blond race is not found unmixed. In point of pedigree all individuals showing the blond traits are hybrids, and the greater number of them show their mixed blood in their physical traits. (e) There is no community, large or small, made up exclusively of blonds, or nearly so, and there is no good evidence available that such an all-blond or virtually all-blond community ever has existed, either in historic or prehistoric times. The race appears never to have lived in isolation. (f) It occurs in several (perhaps hybrid) variants—unless these variants are to be taken (with Deniker) as several distinct races. (g) Counting the dolicho-blond as the original type of the race, its nearest apparent relative among the races of mankind is the Mediterranean (of Sergi), at least in point of physical traits. At the same time the blond race, or at least the dolicho-blond type, has never since neolithic times, so far as known, extensively and permanently lived in contact with the Mediterranean. (h) The various (national) ramifications of the blond stock—or rather the various racial mixtures into which an appreciable blond element enters—are all, and to all appearance have always been, of Aryan (“Indo-European,” “Indo-Germanic”) speech—with the equivocal exception of the Kabyle. (i) Yet far the greater number and variety (national and linguistic) of men who use the Aryan speech are not prevalingly blond, or even appreciably mixed with blond. (j) The blond race, or the peoples with an appreciable blond admixture, and particularly the communities

in which the dolicho-blond element prevails, show little or none of the peculiarly Aryan institutions—understanding by that phrase not the known institutions of the ancient Germanic peoples, but that range of institutions said by competent philologists to be reflected in the primitive Aryan speech. (k) These considerations raise the presumption that the blond race was not originally of Aryan speech or of Aryan culture, and they also suggest (l) that the Mediterranean, the nearest apparent relative of the dolicho-blond, was likewise not originally Aryan.

Accepting the mutation theory, then, for the purpose in hand, and leaving any questions of Aryanism on one side for the present, a canvass of the situation so outlined may be offered in such bold, crude and summary terms as should be admissible in an analysis which aims to be tentative and provisional only. It may be conceived that the dolichocephalic blond originated as a mutant of the Mediterranean type (which it greatly resembles in its scheme of biometric measurements²) probably some time after that race had effected a permanent lodgment on the continent of Europe. The Mediterranean stock may be held (Sergi and Keane) to have come into Europe from Africa,³ whatever its remoter derivation may have been. It is, of course, not impossible that the mutation which gave rise to the dolicho-blond may have occurred before the parent stock left Africa, or rather before it was shut out of Africa by the submergence of the land connection across Sicily, but the probabilities seem to be against such a view. The conditions would appear to have been less favorable to a mutation of this kind in the African habitat of the parent stock than in Europe, and less favorable in Europe during earlier quaternary time than toward the close of the glacial period.

The causes which give rise to a variation of type have always been sufficiently obscure, whether the origin of species be conceived after the Darwinian or the Mendelian fashion, and the mutation theories have hitherto afforded

² Cf. Sergi, *The Mediterranean Race*, ch. xi, xiii.

³ Sergi, *Arii e Italici*; Keane, *Man Past and Present*, ch. xii.

little light on that question. Yet the Mendelian postulate that the type is stable except for such a mutation as shall establish a new type raises at least the presumption that such a mutation will take place only under exceptional circumstances, that is to say, under circumstances so substantially different from what the type is best adapted to as to subject it to some degree of physiological strain. It is to be presumed that no mutation will supervene so long as the conditions of life do not vary materially from what they have been during the previous uneventful life-history of the type. Such is the presumption apparently involved in the theory and such is also the suggestion afforded by the few experimental cases of observed mutation, as, *e.g.*, those studied by De Vries.

A considerable climatic change, such as would seriously alter the conditions of life either directly or through its effect on the food supply, might be conceived to bring on a mutating state in the race; or the like effect might be induced by a profound cultural change, particularly any such change in the industrial arts as would radically affect the material conditions of life. These considerations, mainly speculative it is true, suggest that the dolicho-blond mutant could presumably have emerged only at a time when the parent stock was exposed to notably novel conditions of life, such as would be presumed (with De Vries) to tend to throw the stock into a specifically unstable (mutating) state; at the same time these novel conditions of life must also have been specifically of such a nature as to favor the survival and multiplication of this particular human type. The climatic tolerance of the dolicho-blond, *e.g.*, is known to be exceptionally narrow. Now, it is not known, indeed there is no reason to presume, that the Mediterranean race was exposed to such variations of climate or of culture before it entered Europe as might be expected to induce a mutating state in the stock, and at the same time a mutant gifted with the peculiar climatic intolerance of the dolicho-blond would scarcely have survived under the conditions offered by northern Africa in late quaternary time. But the required conditions are had later on in Europe, after the Mediterranean was securely at home in that continent.

The whole episode may be conceived to have run off somewhat in the following manner. The Mediterranean race is held to have entered Europe in force during quaternary time, presumably after the quaternary period was well advanced, most likely during the last genial, interglacial period. This race then brought the neolithic culture, but without the domestic animals (or plants?) that are a characteristic feature of the later neolithic age, and it encountered at least the remnants of an older, palaeolithic population. This older European population was made up of several racial stocks, some of which still persist as obscure and minor elements in the later peoples of Europe. The (geologic) date to be assigned this intrusion of the Mediterranean race into Europe is of course not, and can perhaps never be, determined with any degree of nicety or confidence. But there is a probability that it coincides with the recession of the ice-sheet, following one or another of the severer periods of glaciations, that occurred before the submergence of the land connection between Europe and Africa, over Gibraltar, Sicily and perhaps Crete. How late in quaternary time the final submergence of the Mediterranean basin occurred is still a matter of surmise; the intrusion of the Mediterranean race into Europe appears, on archaeological evidence, to have occurred in late quaternary time, and in the end this archaeological evidence may help to decide the geologic date of the severance of Europe from Africa.

The Mediterranean race seems to have spread easily over the habitable surface of Europe and shortly to have grown numerous and taken rank as the chief racial element in the neolithic population; which argues that no very considerable older population occupied the European continent at the time of the Mediterranean invasion; which in turn implies that the fairly large (Magdalenian) population of the close of the palaeolithic age was in great part destroyed or expelled by the climatic changes that coincided with or immediately preceded the advent of the Mediterranean race. The known characteristics of the Magdalenian culture indicate a technology, a situation and perhaps a race somewhat closely

paralleled by the Eskimo;⁴ which argues that the climatic situation before which this Magdalenian race and culture gave way would have been that of a genial interglacial period rather than a period of glaciation.

During this genial (perhaps sub-tropical) inter-glacial period immediately preceding the last great glaciation the Magdalenian stock would presumably find Europe climatically untenable, judging by analogy with the Eskimo; whereas the Mediterranean stock should have found it an eminently favorable habitat, for this race has always succeeded best in a warm-temperate climate. Both the extensive northward range of the early neolithic (Mediterranean) settlements and the total disappearance of the Magdalenian culture from the European continent point to a climatic situation in Europe more favorable to the former race and more unwholesome for the latter than the conditions known to have prevailed at any time since the last interglacial period, especially in the higher latitudes. The indications would seem to be that the whole of Europe, even the Baltic and Arctic seaboard, became climatically so fully impossible for the Magdalenian race during this interglacial period as to result in its extinction or definitive expulsion; for when, in recent times, climatically suitable conditions return, on the Arctic seaboard, the culture which takes the place that should have been occupied by the Magdalenian is the Finnic (Lapp)—a culture unrelated to the Magdalenian either in race or technology, although of much the same cultural level and dealing with a material environment of much the same character. And this genial interval that was fatal to the Magdalenian was, by just so much, favorable to the Mediterranean race.

But glacial conditions presently returned, though with less severity than the next preceding glacial period; and roughly coincident with the close of the genial interval in Europe the land connection with Africa was cut off by submergence, shutting off retreat to the South. How far communication with Asia may have been interrupted during

⁴ Cf. W. J. Sollas, "Palaeolithic Races and their Modern Representatives," *Science Progress*, vol. iv, 1909-1910.

the subsequent cold period, by the local glaciation of the Caucasus, Elburz and Armenian highlands, is for the present apparently not to be determined, although it is to be presumed that the outlet to the east would at least be seriously obstructed during the glaciation. There would then be left available for occupation, mainly by the Mediterranean race, central and southern Europe together with the islands, notably Sicily and Crete, left over as remnants of the earlier continuous land between Europe and Africa. The southern extensions of the mainland, and more particularly the islands, would still afford a favorable place for the Mediterranean race and its cultural growth. So that the early phases of the great Cretan (Aegean) civilization are presumably to be assigned to this period that is covered by the last advance of the ice in northern Europe. But the greater portion of the land area so left accessible to the Mediterranean race, in central or even in southern Europe, would have been under glacial or subglacial climatic conditions. For this race, essentially native to a warm climate, this situation on the European mainland would be sufficiently novel and trying, particularly throughout that ice-fringed range of country where they would be exposed to such cold and damp as this race has never easily tolerated.

The situation so outlined would afford such a condition of physiological strain as might be conceived to throw the stock into a specifically unstable state and so bring on a phase of mutation. At the same time this situation, climatic and technological, would be notably favorable to the survival and propagation of a type gifted with all the peculiar capacities and limitations of the dolicho-blond; so that any mutant showing the traits characteristic of that type would then have had an eminently favorable chance of survival. Indeed, it is doubtful, in the present state of the available evidence, whether such a type of man could have survived in Europe from or over any period of quaternary time prior to the last period of glaciation. The last preceding interglacial period appears to have been of a sufficiently genial (perhaps sub-tropical) character throughout Europe to have definitively eliminated the Magdalenian race

and culture, and a variation of climate in the genial sense sufficiently pronounced to make Europe absolutely untenable for the Magdalenian—presumed to be something of a counterpart to the Eskimo both in race and culture—should probably have reached the limit of tolerance for the dolicho-blond as well. The latter is doubtless not as intolerant of a genial—warm-temperate—climate as the former, but the dolicho-blond after all stands much nearer to the Eskimo in this matter of climatic tolerance than to either of the two chief European stocks with which it is associated. Apparently no racial stock with a climatic tolerance approximately like that of the Eskimo, the Magdalenian, or the current races of the Arctic seaboard, survived over the last inter-glacial period; and if the dolicho-blond is conceived to have lived through that period it would appear to have been by a precariously narrow margin. So that, on one ground and another, the mutation out of which the dolicho-blond has arisen is presumably to be assigned to the latest period of glaciation in Europe, and with some probability to the time when the latest glaciation was at its maximum, and to the region where glacial and seaboard influences combined to give that racial type a differential advantage over all others.

This dolicho-blond mutation may, of course, have occurred only once, in a single individual, but it should seem more probable, in the light of De Vries' experiments, that the mutation will have been repeated in the same specific form in several individuals in the same general locality and in the same general period of time. Indeed, it would seem highly probable that several typically distinct mutations will have occurred, repeatedly, at roughly the same period and in the same region, giving rise to several new types, some of which, including the dolicho-blond, will have survived. Many, presumably the greater number, of these mutant types will have disappeared, selectively, being unfit to survive under those sub-glacial seaboard conditions that were eminently favorable to the dolicho-blond; while other mutants arising out of the same mutating period and adapted

to climatic conditions of a more continental character, suitable to more of a continental habitat, less humid, at a higher altitude and with a wider seasonal variation of temperature, may have survived in the regions farther inland, particularly eastward of the selectively defined habitat of the dolicho-blond. These latter may have given rise to several blond races, such as are spoken for by Deniker⁵ and certain British ethnologists.

The same period of mutation may well have given rise also to one or more brunet types, some of which may have survived. But if any new brunet type has come up within a period so recent as this implies, the fact has not been noted or surmised hitherto—unless the brunet races spoken for by Deniker are to be accepted as typically distinct and referred to such an origin. The evidence for the brunet stocks has not been canvassed with a question of this kind in view. These stocks have not been subject of such eager controversy as the dolicho-blond, and the attention given them has been correspondingly less. The case of the blond is unique in respect of the attention spent on questions of its derivation and prehistory, and it is also singular in respect of the facility with which it can be isolated for the purposes of such an inquiry. This large and persistent attention, from all sorts of ethnologists, has brought the evidence bearing on the dolicho-blond into such shape as to permit more confident generalizations regarding that race than any other.

In any case the number of mutant individuals, whether of one or of several specific types, will have been very few as compared with the numbers of the parent stock from which they diverged, even if they may have been somewhat numerous as counted absolutely, and the survivors whose offspring produced a permanent effect on the European peoples will have been fewer still. It results that these surviving mutants will not have been isolated from the parent stock, and so could not breed in isolation, but must forthwith be crossed on the parent stock and could therefore

⁵ *The Races of Mankind*; and "Les six races composant la population de l'Europe," *Journal Anth. Inst.*, 1906.

yield none but hybrid offspring. From the outset, therefore, the community or communities in which the blond mutants were propagated would be made up of a mixture of blond and brunet, with the brunet greatly preponderating. It may be added that in all probability there were also present in this community from the start one or more minor brunet elements besides the predominant Mediterranean, and that at least shortly after the close of the glacial period the new brachycephalic brunet (Alpine) race comes into the case; so that the chances favor an early and persistent crossing of the dolicho-blond with more than one brunet type, and hence they favor complications and confusion of types from the start. It follows that, in point of pedigree, according to this view there neither is nor ever has been a pure-bred dolicho-blond individual since the putative original mutant with which the type came in. But under the Mendelian rule of hybrids it is none the less to be expected that, in the course of time and of climatically selective breeding, individuals (perhaps in appreciable numbers) will have come up from time to time showing the type characters unmixed and unweakened, and effectively pure-bred in point of heredity. Indeed, such individuals, effectively pure-bred or tending to the establishment of a pure line, will probably have emerged somewhat frequently under conditions favorable to the pure type. The selective action of the conditions of life in the habitat most favorable to the propagation of the dolicho-blond has worked in a rough and uncertain way toward the establishment, in parts of the Baltic and North Sea region, of communities made up pre-vaillingly of blonds. Yet none of these communities most favorably placed for a selective breeding in the direction of a pure dolicho-blond population have gone far enough in that direction to allow it safely to be said that the composite population of any such given locality is more than half blond.

Placed as it is in a community of nations made up of a hybrid mixture of several racial stocks there is probably no way at present of reaching a convincing demonstration of the typical originality of this dolicho-blond mutant, as contrasted with the other blond types with which it is associ-

ated in the European population; but certain general considerations go decidedly, perhaps decisively, to enforce such a view: (a) This type shows such a pervasive resemblance to a single one of the known older and more widely distributed types of man (the Mediterranean) as to suggest descent by mutation from this one rather than derivation by crossing of any two or more known types. The like can not be said of the other blond types, all and several of which may plausibly be explained as hybrids of known types. They have the appearance of blends, or rather of biometrical compromises, between two or more existing varieties of man. Whereas it does not seem feasible to explain the dolicho-blond as such a blend or compromise between any known racial types. (b) The dolicho-blond occurs, in a way, centrally to the other blond types, giving them a suggestive look of being ramifications of the blond stock, by hybridization, into regions not wholly suited to the typical blond. The like can scarcely be said for any of the other European types or races. The most plausible exception would be Deniker's East-European or Oriental race, Beddow's Saxon, which stands in a somewhat analogous spacial relation to the other blond types. But this brachycephalic blond is not subject to the same sharp climatic limitations that hedge about the dolicho-blond; it occurs apparently with equally secure viability within the littoral home area of the dolicho-blond and in continental situations where conditions of altitude and genial climate would bar the latter from permanent settlement. The ancient and conventionally accepted center of diffusion of blondness in Europe lies within the seaboard region bordering on the south Baltic, the North Sea and the narrow waters of the Scandinavian peninsulas. Probably, if this broad central area of diffusion were to be narrowed down to a particular spot, the consensus of opinion as to where the narrower area of characteristic blondness is to be looked for, would converge on the lands immediately about the narrow Scandinavian waters. This would seem to hold true for historic and for prehistoric times alike. This region is at the same time, by common consent, the peculiar home of the dolicho-

blond, rather than of any other blond type. (c) The well known but little discussed climatic limitation of the blond race applies particularly to the dolicho-blond, and only in a pronouncedly slighter degree to the other blond types. The dolicho-blond is subject to a strict regional limitation, the other blond types to a much less definite and wider limitation of the same kind. Hence these others are distributed somewhat widely, over regions often remote and climatically different from the home area of the dolicho-blond, giving them the appearance of being dispersed outward from this home area as hybrid extensions of the central and typical blond stock. A further and equally characteristic feature of this selective localization of the dolicho-blond race is the fact that while this race does not succeed permanently outside the seaboard region of the south Baltic and North Sea, there is no similar selective bar against other races intruding into this region. Although the dolicho-blond perhaps succeeds better within its home area than any other competing stock or type, yet several other types of man succeed so well within the same region as to hold it, and apparently always to have held it, in joint tenancy with the dolicho-blond.

A close relationship, amounting to varietal identity, of the Kabyle with the dolicho-blond has been spoken for by Keane and by other ethnologists. But the very different climatic tolerance of the two races should put such an identity out of the question. The Kabyle lives and thrives best, where his permanent home area has always been, in a high and dry country, sufficiently remote from the sea to make it a continental rather than a littoral habitat. The dolicho-blond, according to all available evidence, can live in the long run only in a seaboard habitat, damp and cool, at a high latitude and low altitude. There is no known instance of this race having gone out from its home area on the northern seaboard into such a region as that inhabited by the Kabyle and having survived for an appreciable number of generations. That this type of man should have come from Mauritania, where it could apparently not live under the conditions known to have prevailed there in the

recent or the remoter past, would seem to be a biologic impossibility. Hitherto, when the dolicho-blond has migrated into such or a similar habitat it has not adapted itself to the new climatic requirements but has presently disappeared off the face of the land. Indeed, the experiment has been tried in Mauritanian territory. If the Kabyle blond is to be correlated with those of Europe, it will in all probability have to be assigned an independent origin, to be derived from an earlier mutation of the same Mediterranean stock to which the dolicho-blond is to be traced.

Questions of race in Europe are greatly obscured by the prevalence of hybrid types having more or less fixity and being more or less distinctly localized. The existing European peoples are hybrid mixtures of two or more racial stocks. The further fact is sufficiently obvious, though it has received less critical attention than might be, that these several hybrid populations have in the course of time given rise to a number of distinct national and local types, differing characteristically from one another and having acquired a degree of permanence, such as to simulate racial characters and show well marked national and local traits in point of physiognomy and temperament. Presumably, these national and local types of physique and temperament are hybrid types that have been selectively bred into these characteristic forms in adaptation to the peculiar circumstances of environment and culture under which each particular local population is required to live, and that have been so fixed (provisionally) by selective breeding of the hybrid material subject to such locally uniform conditions—except so far as the local characters in question are of the nature of habits and are themselves therefore to be classed as an institutional element rather than as characteristics of race.

It is evident that under the Mendelian law of hybridization the range of favorable, or viable, variations in any hybrid population must be very large—much larger than the range of fluctuating (non-typical) variations obtainable under any circumstances in a pure-bred race. It also follows from these same laws of hybridization that by virtue of the

mutual exclusiveness of allelomorphic characters or groups of characters it is possible selectively to obtain an effectually "pure line" of hybrids combining characters drawn from each of the two or more parent stocks engaged, and that such a composite pure line may selectively be brought to a provisional fixity⁶ in any such hybrid population. And under conditions favorable to a type endowed with any given hybrid combination of characters so worked out the given hybrid type (composite pure line) may function in the racial mixture in which it is so placed very much as an actual racial type would behave under analogous circumstances; so that, *e.g.*, under continued intercrossing such a hybrid population would tend cumulatively to breed true to this provisionally stable hybrid type, rather than to the actual racial type represented by any one of the parent stocks of which the hybrid population is ultimately made up, unless the local conditions should selectively favor one or another of these ultimate racial types. Evidently, too, the number of such provisionally stable composite pure lines that may be drawn from any hybrid mixture of two or more parent stocks must be very considerable—indeed virtually unlimited; so that on this ground there should be room for any conceivable number of provisionally stable national or local types of physique and temperament, limited only by the number of characteristically distinguishable local environments or situations that might each selectively act to characterize and establish a locally characteristic composite pure line; each answering to the selective exigencies of the habitat and cultural environment in which it is placed, and each responding to these exigencies in much the same fashion as would an actual racial type—provided only that this provisionally stable composite pure line is not crossed on pure-bred individuals of either of the parent stocks from which it is drawn, pure-bred in respect of the allelomorphic characters which give the hybrid type its typical traits.

When the hybrid type is so crossed back on one or other of its parent stocks it should be expected to break down;

⁶ Illustrated by the various pure breeds or "races" of domestic animals.

but in so slow-breeding a species as man, with so large a complement of unit characters (some 4000 it has been estimated), it will be difficult to decide empirically which of the two lines—the hybrid or the parent stock—proves itself in the offspring effectively to be a racial type; that is to say, which of the two (or more) proves to be an ultimately stable type arisen by a Mendelian mutation, and which is a provisionally stable composite pure line selectively derived from a cross. The inquiry at this point, therefore, will apparently have to content itself with arguments of probability drawn from the varying behavior of the existing hybrid types under diverse conditions of life.

Such general consideration of the behavior of the blond types of Europe, other than the dolicho-blond, and more particularly consideration of their viability under divergent climatic conditions, should apparently incline to the view that they are hybrid types, of the nature of provisionally stable composite pure lines.

So far, therefore, as the evidence has yet been canvassed, it seems probable on the whole that the dolicho-blond is the only survivor from among the several mutants that may have arisen out of this presumed mutating period; that the other existing blond types, as well as certain brunets, are derivatives of the hybrid offspring of the dolicho-blond crossed on the parent Mediterranean stock or on other brunet stocks with which the race has been in contact early or late; and that several of these hybrid lines have in the course of time selectively been established as provisionally stable types (composite pure lines), breakable only by a fresh cross with one or other of the parent types from which the hybrid line sprang, according to the Mendelian rule.⁷

All these considerations may not be convincing, but they are at least suggestive to the effect that if originality is to

⁷ Mr. R. B. Bean's discussion of Deniker's "Six Races," *e.g.*, goes far to show that such is probably the standing of the blond types, other than the dolicho-blond, among these six races of Europe; although such is not the conclusion to which Mr. Bean comes. *Philippine Journal of Science*, September, 1909.

be claimed for any one of the blond types or stocks it can best be claimed for the dolicho-blond, while the other blond types may better be accounted for as the outcome of the crossing of this stock on one or another of the brunet stocks of Europe.